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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,166	09/08/2003	Wolfgang Albrecht	NI 156	1545

7590 02/21/2007
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EXAMINER

FORTUNA, ANA M

ART UNIT	PAPER NUMBER
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1723

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,166	ALBRECHT ET AL.	
	Examiner	Art Unit	
	Ana M. Fortuna	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In the specification, example 2, washing the membrane to remove modifier substances "not covalently bonded" to the membrane e.g. polyimide, is disclosed. Explanations on how are the covalent bond formed between the polyimide substrate and the aqueous diamine solution or modifier solutions are not provided.

Claim Rejections - 35 USC § 102

2. Claims 1- 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Linder et al (5,049,282)(hereinafter Patent '282).

Patent '282 discloses the membrane including a support and a layer of polyamine compound, the support can be selected to be a polyimide support (column 2, lines 51-60), and the polyamine can be formed from primary, secondary amines, etc. (column 4, lines 14-63).

The layer formation or modifier treatment including heating is also disclosed (column 3, lines 40-63).

The percentage of the modifier, e.g. amine is suggested, and the time and temperature conditions are also disclosed (column 10, lines 49-68, column 12, lines 22-36).

3. Claims 1-5, 7, 11-15, 17, are rejected under 35 U.S.C. 102(b) as being anticipated by Drumheller (US 5,914,182). Drumheller discloses support members or membranes made from polyimide, between other listed materials (abstract, column 12, lines 3-14), modified by a crosslinked modifier solution including polyethyleneimine in a suitable solvent including alcohol and water, etc (see column 12, lines 37-68 and column 13, lines 3). Regarding claim 1, the membrane including the support, which is pretreated with a surfactant adsorbed (or optionally crosslinked to itself, and further forming a "covalent crosslinked" layer of the amine solution, e.g. polyethyleneimine (column 12, lines 55, column 11, last paragraph, through column 12, lines 1-2).

Therefore, the membrane including two layers including the polyimide body and the modifier layer formed from the primary or secondary amine compound and crosslinked by the reaction with the surfactant adsorbed on the polyimide support, is disclosed in Drumheller, since claim 1 does not exclude pretreatment of the polyimide body or membrane.

The covalent attachment of the surface modified e.g. amine solution, and process of treating the support or substrate (polyimide) with the modifier solution is also disclosed in Drumheller (see column 15, lines 20-51, column 16, lines 28-52), coating by immersing, which covers both sides of the membrane, washing with water, heating, and drying steps are also disclosed (see examples 1-13, illustrated for ePTFE support, however, polyimide can be used, claims 1-6).

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The percentages of the hydrophilic polymer, e.g. amino compound in the solvent, as claimed in claims 4, 13-14 is disclosed to be about 0.001 to 99.9 %, and preferable about 0.25 to 5 %. (see column 15, second paragraph).

The primary or secondary amino compound of claims 5 and 15 is discussed above, e.g. polyethyleneimine.

Regarding claims 2-3 and 11, the treatment time, washing and temperature conditions are disclosed in '182 (column 17, last paragraph bridging column 18, and column 18, lines 50-53).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6, 8, 9, 10, 16, 18, 19, 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Drumheller (US 5,914,182). Drumheller, discussed above does not disclosed or limit the membrane support to asymmetric or supported structure, and teaches that porous support can be used for the hydrophilic treated membrane (see column 16, lines 40-54). Selecting asymmetric support is not critical to the invention. One skilled in the art at the time the invention was made would have been motivated to use any commercially available polyimide membrane for the modification, base on the only limitation of being porous an non blocked by the treatment, as suggested in the patent above. Coating the support from the non-active surface it would have been

obvious to the skilled artisan and suggested by patent '182, e.g. immersing, which cover both membrane surfaces (see column 20, example 6).

Regarding claim 9, the selected polyimide membrane is a dried polyimide, e.g. a pre-prepared polyimide.

Regarding claim 10, wetting the membrane support with a wetting agent is also suggested in Drumheller (column 13, second paragraph, example 4, column 19, line 20).

Regarding claims 10 and 20, wetting the membrane with a well wetting aqueous solution is suggested in Drumheller (column 13, second paragraph, column 20, example 6, column 19, example 4, column 20, example 7).

Response to Arguments

7. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the covalent link where the degree of cross-linkage of the modifier remains unchanged in its original chemical constitution, not interlinked by itself) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's arguments filed on 1/11/06 have been fully considered but they are not persuasive. The 112 rejection is maintained, because the specification does not provide bases for the covalent bond, e.g. as to whether it is formed by the "at least one

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further functional group" or without the functional group by the hating conditions, or whether the support (polyimide) includes the groups reacting with the amine group(s). Rejection over Linder et al is maintained, because Linder teaches covalent bond as preferred crosslink, and the combination of salts with the amine compound to generate the covalent bond is also disclosed (column 5, lines 521, column 8, lines 34-49, column 9, lines 43-68 and column 10, lines 1-6). The rejection is maintained, because two layers or double treatment of the substrate is not required to produce the covalent bond in Linder ('282).

Applicant argues regarding to Linder et al. that Linder et al used a sodium nitride to react the amine and for the covalent bond. The product claims, 1-5, in the present invention do not exclude the presence of and intermedia reactive group covalently bonding the amino groups to the polyimide substrate. Furthermore, these claims are directed to a product, and not to a process of making, and the final product in the present invention includes the amino groups covalently bonded to the polyimide membrane support.

See In SmithKline Beecham corp. V Apotex Corp., NO. 04-1522 (Fed. Circ. February 24, 2006).

Rejections based on patent '182 are also maintained because US'182 teaches the contact between the amine and the support, which can be a polyimide, the linkage is by covalent bond by using a crosslinking agent, which is not exclude from the claims in the present invention. US'182, use the same type of solution, e.g. the same secondary

amine and solvents including alcohol and treatment solution for the hydrophobic substrate (polyimide).

Conclusion


THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

AF

February 08, 2006